

Specification

The incorporation of essential material in the specification by reference to an unpublished U.S. application, foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office. The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(f).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 depends from a cancelled claim. In the art rejections below it is treated as being dependent upon claim 1 as best understood by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 22 is rejected under 35 U.S.C. 102(b) as being anticipated by Luffel et al.

Luffel et al. US 6,222,699 discloses a method of operating a shelving system

comprising the steps:

providing a first (60) and a second (62) shelf;

providing the shelves with rails;

providing at least one robot for placing and removing containers from discrete locations within the shelves;

providing each shelf with a plurality of vertically stacked shelving levels, each with associated rails for the robot;

providing a vertical elevator (110) with an associated cage (112) and a modular guide rail comprising at least two sections;

moving the robot from one level to another via the elevator cage;

wherein the rails on the elevator cage are aligned with respective rails on a shelving level such that the robot may move from level to level and from one shelf to another;

operating the robot to place or retrieve a container from any predetermined location in any shelf at and shelving level.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3,5-10,13-18,20 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Plutt et al. in view of Kita et al.

Regarding claims 1,3 and 8 Plutt et al. US 6,639,879 teaches a method of operating a shelf system comprising the steps:

- providing one or more vertically stacked shelf section, each having a plurality of vertically stacked individual shelves therein;

- providing at least one storage and retrieval unit for placing and picking objects from the individual shelves;

- providing a vertical elevator;

- vertically transferring the storage and retrieval unit between the shelf sections via an elevator. Plutt et al. do not teach providing an input conveyor for the stored items.

Kita et al. US 5,135,344 teaches an automated storage method comprising:

- providing a plurality of shelving units vertically stacked on one another;

- providing a rail system at each level;

- providing an elevator for moving a container to a predetermined level;

- providing a conveyor to move containers into the elevator;

- providing an exit elevator and conveying system to remove containers from the storage shelves;

wherein said conveyor is located on one side of the shelves and said elevator is located on a different side of the same shelves. It would have been obvious to one of ordinary skill in the art, at the time of invention to modify the methods taught by Plutt et

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al. by providing and using an input conveyor as taught by Kita et al. in order to autonomously move containers to and from the storage shelves.

Regarding claim 2 Plutt et al. also teach placing the storage and retrieval unit onto a shelf section without a robot thereon.

Regarding 5 Plutt et al. also teach displacing a storage and retrieval unit at a height above the ground from one row of shelf section to another row of shelf sections at the same height or at a vertically displaced height as needed relative to the ground via the elevator system.

Regarding claim 6 Plutt et al. also teach the step of withdrawing the object holding portion of the storage and retrieval unit into a compact flat withdrawn position prior to transferring the storage and retrieval unit to another location.

Regarding claim 7 Plutt et al. also teach the storage and retrieval units as being transferred from one shelf section to another while holding a container.

Regarding claim 9 Plutt et al. teach a shelving system comprising:
one or more vertically stacked shelving units;
each unit being made up of a plurality of vertically stacked individual shelves;
a plurality of storage and retrieval unit for moving containers onto and off of the individual shelves;

a vertical elevator for transferring the storage and retrieval unit from a first shelving unit to second shelving unit spaced either above or below the first shelving unit. Plutt et al. do not teach an input conveyor. Kita et al. US 5,135,344 teaches an automated storage system comprising:

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a plurality of shelving units vertically stacked on one another;
a rail system at each level;
an elevator for moving a container to a predetermined level;
a conveyor to move containers into the elevator;
an exit elevator and conveying system to remove containers from the storage shelves;

wherein said conveyor is located on one side of the shelves and said elevator is located on a different side of the same shelves. It would have been obvious to one of ordinary skill in the art, at the time of invention to modify the device taught by Plutt et al. by providing an input conveyor as taught by Kita et al. in order to autonomously move containers to and from the storage shelves.

Regarding claim 10 Plutt et al. also disclose the elevator as being at one or both longitudinal ends of the shelving system.

Regarding claim 14 Kita et al. teach that an elevator may be present at either end of the storage shelves and that the conveyors are located at either end of the storage shelves as well. It would have been obvious to one of ordinary skill in the art, at the time of invention an obvious design choice to use only one input/exit conveyor as this is a simple removal of existing parts.

Regarding claim 13 Plutt et al. further disclose the elevator as having a cage for receiving a storage and retrieval unit, said cage vertically displaceable between at least two shelving section.

Regarding claims 15 and 16 Plutt et al. also disclose displacing a storage and retrieval unit at a height above the ground from one row of shelf section to another row of shelf sections at the same height or at a vertically displaced height as needed relative to the ground via the elevator system.

Regarding claim 17 Plutt et al. further disclose the storage and retrieval units as being mounted on an upper and a lower fixed horizontal rail such that they tilt relative to the shelving units face.

Regarding claims 18 and 20 Plutt et al. also disclose the storage and retrieval units each have a vertical mast with a height adjustable load receiving means thereon for positioning containers on different individual shelves on each shelving unit, wherein said mast extends at least over the height of a shelving unit.

Regarding claim 21 Plutt et al. also disclose withdrawing the object holding portion of the storage and retrieval unit into a compact flat withdrawn position prior to transferring the storage and retrieval unit to another location.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plutt et al. and Kita et al. as applied to claim 18 above, and further in view of Nakashima et al. Plutt et al. teach the limitations of claim 18 as above, they do not teach as articulated joint between the mast and the running structure of the storage and retrieval device. Nakashima et al. US 6,443,264 teaches a stacker crane with a vertical mast with an upper section (110) that is connected to a track running drive (108) via articulated joints such as illustrated by element (129). It would have been obvious to one of ordinary skill in the art, at the time of invention to provide the device taught by Plutt et al. with a joint

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as taught by Nakashima et al. in order to allow a slight misalignment between the top and bottom sections supporting the vertical mast, thereby decreasing the chance of jamming the storage and retrieval device on the upper and lower tracks.

Response to Amendment

The amendments to the claims and specification have been entered into the record.

The amendment to the specification is read as the height of a shelving unit is possible based upon its weight or not.

Response to Arguments

Applicant's arguments with respect to claims 1,9 and 22 have been considered but are moot in view of the new ground(s) of rejection. The arguments based upon economy to build are not persuasive as they can not be readily substantiated. They are also not present in the claims. Only features in the claims is being examined for novelty.

Regarding the incorporation by reference of the Foreign priority documents the applicant is incorrect. The PCT filing is still a Foreign filing.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles A. Fox whose telephone number is 571-272-6923. The examiner can normally be reached on 7:00-4:00 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on 571-272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles A. Fox/
Primary Examiner, Art Unit 3652